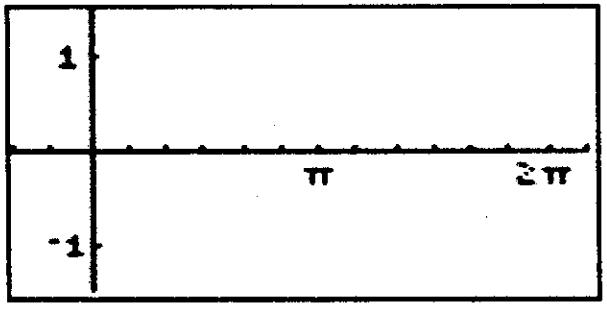
Graphs of the Sine and Cosine Functions

1. Let x represent the length of the the arc on the unit circle, and y represent the x-coordinate of the point on the unit circle associated with x. Fill in the chart below.

x	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π
y													

Plot these points on the grid below.



This is the graph of **y = cosx.**

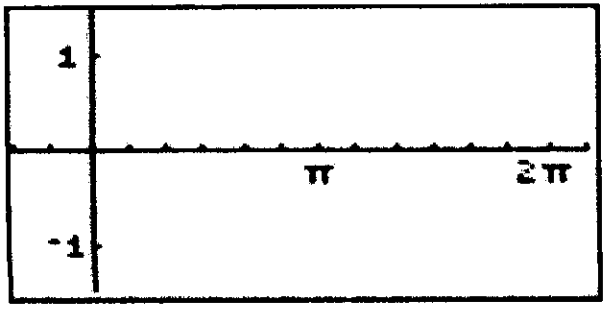
Domain of y = cosx: _____

Range of y = cosx: _____

2. Let x represent the length of the the arc on the unit circle, and y represent the y-coordinate of the point on the unit circle associated with x. Fill in the chart below.

x	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π
y													

Plot these points on the grid below.



This is the graph of **y = sinx.**

Domain of y = sinx: _____

Range of y = sinx: _____

Graphs of the Other Trigonometric Functions

1. We'll use a different approach than we used with the sine and cosine to obtain the graphs of **y = tanx** and **y = cotx**.

a. **y = tanx =** _____

Consider the interval [0 , 2π].
At what values of x is the tanx undefined?

x= _____

At what values of x does the tanx=0?

x= _____

As x goes from 0 to π/2, tanx goes

from _____ to _____

As x goes from π/2 to π, tanx goes

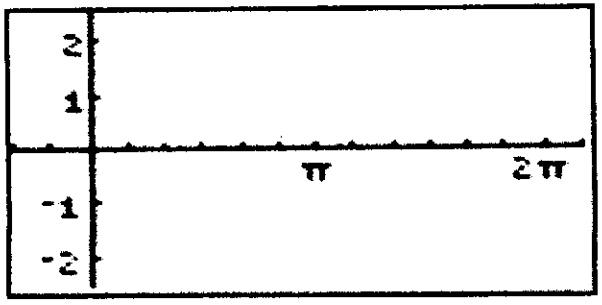
from _____ to _____

As x goes from π to 3π/2, tanx goes

from _____ to _____

As x goes from 3π/2 to 2π, tanx goes

from _____ to _____



Domain of y = tanx _____

Range of y = tanx _____

b. **y = cotx =** _____

Consider the interval [0 , 2π].
At what values of x is the cotx undefined?

x= _____

At what values of x does the cotx=0?

x= _____

As x goes from 0 to π/2, cotx goes

from _____ to _____

As x goes from π/2 to π, cotx goes

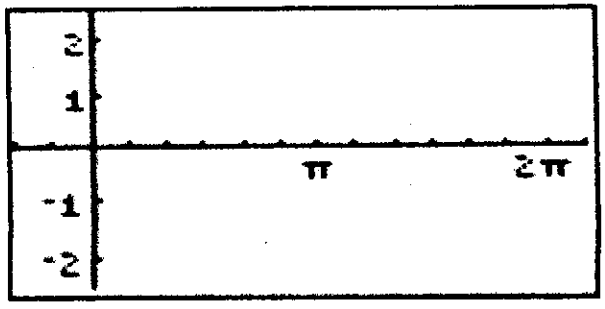
from _____ to _____

As x goes from π to 3π/2, cotx goes

from _____ to _____

As x goes from 3π/2 to 2π, cotx goes

from _____ to _____



Domain of y = cotx _____

Range of y = cotx _____

3. Finally, let's obtain the graphs of **y = secx** and **y = cscx**. To do this, we will use the graphs of y=cosx and y=sinx.

a. **y = secx =** _____

On the axes below, sketch y = cosx.
Where the cosx equals zero,

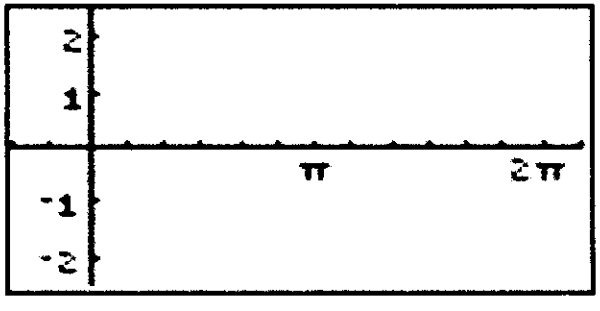
the secx is _____

Where the cosx equals one,

the secx equals _____

As the cosx goes from one to zero,

the secx goes from _____ to _____



Domain of y = secx _____

Range of y = secx _____

y = cscx = _____

On the axes below, sketch y = sinx.
Where the sinx equals zero,

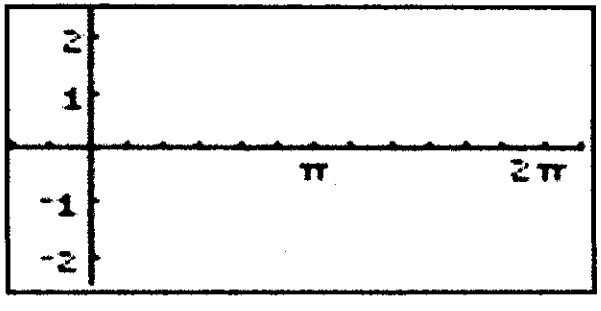
the cscx is _____

Where the sinx equals one,

the cscx equals _____

As the sinx goes from one to zero,

the cscx goes from _____ to _____



Domain of y = cscx _____

Range of y = cscx _____